

IN THE CLAIMS

Please add new claims 18-20 and amend claims 1-4, 6, 7, and 12-15 as follows:

1 (Amended) A method for implementing bump mapping, comprising [the steps of]:
Surf Bump
generating a table of color values referenced by orientation-dependent color variables;
estimating angle coordinates for a pixel in a polygon;
modifying the estimated angle coordinates, using a perturbation source;
converting the modified angle coordinates to one or more color variables; and
assigning the pixel a color value according to the one or more color variables.

2. (Amended) The method of claim 1, wherein modifying the estimated angle coordinates includes:
generating angle perturbations; and
[adding] combining the angle perturbations [to] with the angle coordinates.

3. (Amended) The method of claim 2, wherein generating angle perturbations comprises:
estimating [a] bump [variable] coordinates for the pixel; and
converting the bump [variable] coordinates to angle perturbations.

*A1
cont*

4. (Amended) The method of claim 3, wherein converting the [perturbation variable] bump coordinates comprises retrieving angle perturbations from a bump map location referenced by the [perturbation variable] bump coordinates.

6. (Amended) The method of claim 3, wherein estimating the [perturbation variable] bump coordinates comprises:

determining [perturbation variables] bump coordinates for vertices of the polygon;
interpolating [perturbation variables] bump coordinates for the pixel from the determined vertex [perturbation variables] bump coordinates.

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S w
B3*

7. (Amended) A graphics system comprising:

a geometry engine to associate vector orientation data with vertices of one or more polygons representing an object in an image;
a color map including color values for a sample of vector orientations, each color value being referenced by one or more orientation dependent color variables;
a perturbation source to provide orientation perturbations; and
a rendering engine to convert vertex data for each polygon to angle coordinates and perturbation coordinates for each pixel in the polygon, generate one or more perturbed color variables using the angle and perturbation coordinates, and assign a color value to each pixel according to its one or more color variables.

12. (Amended)

*Sub
b4* A machine readable medium on which are stored instructions that are executable by a system to implement a method for assigning a color value to an image pixel, the method comprising:

generating color values for a sample of normal vector orientations, each color value being associated with one or more scaled angle coordinates representing a corresponding normal vector orientation;

estimating [one or more] first and second angle coordinates for the pixel;

perturbing the [one or more] first and second angle coordinates to provide modified first and second angle coordinates; and

retrieving a color value for the pixel according to the perturbed first and second angle [variables] coordinates.

13. (Amended)

The machine readable medium of claim 12, wherein perturbing comprises:

generating first and second angle perturbations for the pixel; and

combining the first and second angle perturbations with the first and second angle coordinates to form modified first and second angle coordinates.

14. (Amended)

*Sub
b5* The machine readable storage medium of claim 12, wherein estimating comprises:

interpolating the first and second angle coordinates for the pixel from angle coordinates for the polygon vertices; and

converting the interpolated first and second angle coordinates to scaled angle coordinates.

15. (Amended) A graphics system comprising:

means for associating vector orientation data with vertices of one or more polygons representing an object in an image;

means for indicating color values for a sample of vector orientations, each color value being referenced by one or more orientation dependent color variables;

means for providing orientation perturbations; and

means for converting vertex data for each polygon to angle coordinates and perturbation coordinates for each pixel in the polygon; and

means for combining the angle and perturbation coordinates to provide a color value for each pixel through perturbed color variable.

18. (New) A system comprising:

a graphics pipeline; and

a memory, in which are stored instructions that are executable by the graphics pipeline to implement a method for assigning a color value to a pixel, the method comprising:

generating color values for a sample of vector orientations, each color value being associated with first and second angle coordinates representing a corresponding vector orientation;

estimating first and second angle coordinates for the pixel;

perturbing the first and second angle coordinates to provide modified first and second angle coordinates; and

retrieving a color value for the pixel according to the perturbed first and second angle coordinates.

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cont.

19. (New) The system of claim 18, wherein each color value is associated with first and second angle coordinates through one or more angle coordinates that index the color value.

20 (New) The system of claim 18, wherein the graphics pipeline includes texture mapping hardware and the color values are accessed using the texture mapping hardware.